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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/617,253	07/11/2003	Kyung-Chool Choi	1293.1772	2437
21171	7590	08/23/2007	EXAMINER	
STAAS & HALSEY LLP			CAVALLARI, DANIEL J	
SUITE 700			ART UNIT	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/617,253

Applicant(s)

CHOI ET AL.

Examiner

Daniel J. Cavallari

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 June 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7,9-13,15 and 18 is/are rejected.
- 7) ☐ Claim(s) 8,14,16 and 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 6/1/2007 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/1/2007 has been entered.

Response to Arguments

Applicant's arguments, see pages 8-9, filed 6/1/2007, with respect to the 112 first paragraph rejections to the claims, objection to the specification and drawings have been fully considered and are persuasive. These rejections and objections have been withdrawn however, upon further review, new 112 second paragraph rejections to the claims have been made and are disclosed below as well as objection to the newly submitted drawings also disclosed below.

Drawings

The drawings are objected to for the following reasons:

- The new drawings are informal and the markings appear hand drawn.

Furthermore, Figure 2 has omitted the output "OUT1" from the transformer (180) which was present in the previous drawing.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 3, 8, 11, 16-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In regard to Claims 3, 11, & 18

- It is unclear what is meant by "...wherein the power rectifier unit... has a discharge line that is open to prevent discharge of charges stored in the electrolytic capacitor". The claim will be examined as best understood to mean "has a discharge line that is grounded" [The Examiner notes that applicant has failed to provide a drawing which explicitly shows the structure of the rectifier bridge other than that which is depicted in Figure 3].

In regard to Claim 8

- Claim 2, which claim 8 depends states "An apparatus for controlling a power supply, having a power switching unit, in an electronic machine... the apparatus comprising... a power rectification unit..." Therefore, the apparatus comprises a power switching unit and the electronic machine however claim 8 states "...wherein when the power switching unit receives non-rectified AC power without receiving a signal from the power supply control unit... rectified DC power

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is not supplied to the electronic machine” however since the machine comprises the power rectification unit, the only way the switching unit receives AC power is if the AC power source is on and attached (See Figure 3) and therefore power would be supplied to the passive rectifier (120) which would output DC power to the transformer”. The claim will be examined as best understood to mean that “DC power is not further converted by the pulse-width modulation integrated circuit”. The applicant is advised to clarify the preamble of claim 2 making the relationship between the “electronic machine, power switching unit, host and apparatus clearer”.

In regard to Claim 16

- Claim 16 contains the same clarity issues in regard to the relationship between the “electronic machine, power switching unit, host and apparatus as stated for claim 8. See arguments in regard to the 112 problems with claim 8 above.

In regard to Claim 17

- The claim states “...wherein the discharge line of the electrolytic capacitor has no discharge path...” The Examiner notes that the capacitor disclosed in Figure 3 shows the capacitor connected to ground, and therefore does have a discharge path. The claim will be examined as best understood and taught by the applicant as disclosed in Figure 3 wherein the capacitor is connected to ground.

Claim Rejections - 35 USC § 102

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1, 2, 3, 5, 6 & 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Huh et al. (US 7,054,169).

In regard to Claim 1

A method of controlling a power supply, having a power switching unit, in an electronic machine using a host connected to the electronic machine, the method comprising:

- Transmitting received alternating current (AC) power (received via input "Vin", See fig 5) to the power switching unit (read on by 350) and simultaneously transforming the AC power into direct current (DC) power (via rectifier BR310).
- Determining whether the host (200) requests provision of the DC power to the electronic machine (device connected to output Vo (not shown)).

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- Driving a pulse width modulation-integrated circuit (PWM-IC) (350) of the power switching unit using the AC power (via BR310, transformer L310 and switch MOS330) in response to determining that provision of the DC power to the electronic machine is requested (See Column 10, Lines 34-65).

In regard to Claim 2

An apparatus for controlling a power supply, having a power switching unit, in an electronic machine using a host connected to the electronic machine, the apparatus comprising

- A power rectification unit (BR310) transforming received alternating current (AC) (via V_{in}) power into direct current (DC) power and smoothing the DC power (via C310)
- A power switching unit (350), driven by the AC power and having a pulse width modulation integrated circuit (PWM-IC) that is switched on or off to control provision of the DC power to the electronic machine (200) when the host (load connected at V_o) requests provision of DC power to the electronic machine (via the power (or lack of power) drawn by the load)
- An AC power connection unit (read on by the leads connecting the bridge rectifier with the AC source " V_{in} ") receiving the AC power and outputting the AC power to the power switching unit

- A power supply control unit (220) controlling the operation of the power switching unit, regardless of whether power is received by the power switching circuit.

In regard to Claim 3

- Wherein the power rectification unit comprises an electrolytic capacitor that smoothes rectified power and has a discharge line that is grounded to prevent discharge of charges stored in the electrolytic capacitor (See Figure 5).

In regard to Claim 5

- A first node (read on by the bottom AC power connection) connected to an AC power supply source (Vin) (See figure 5) and a second node connected to the power switching unit (Vcc 350) and a resistor (R312) between the first node and the second node, wherein the AC power connection unit receives the AC power from the AC power supply source via the first node and transmits the AC power via the resistor to the second node (See Figure 5).

In regard to Claim 6

- Wherein the power rectification unit further comprises a diode (read on by the diode bridge BR310) receiving the AC power from the AC power supply source via the first node and rectifying the AC power, the electrolytic capacitor (C310) receiving the rectified power and outputting smoothed DC power to a

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transformer, without outputting the smoothed DC power to the power switching unit (The Examiner notes that the output of the capacitor is not provided to the switching unit) (See Figure 5).

In regard to Claim 9

- Transmitting a signal to stop operation of the PWM-IC when the host has not requested provision of the DC power to the electronic machine (See Column 12, Line 45 to Column 14, Line 32) within a predetermined period of time [read on by the time constant of capacitor C345, See Column 13, Lines 18-32] [The Examiner notes that an off signal is produced via the offset voltage].

Claims 2, 4, 7, 10, 11, 12, 13, & 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Kim et al. (US 5,961,647).

In regard to Claim 2

An apparatus for controlling a power supply, having a power switching unit, in an electronic machine using a host connected to the electronic machine, the apparatus comprising

- A power rectification unit (80, Fig 6) transforming received alternating current (AC) (via V_{in}) power into direct current (DC) power and smoothing the DC power (via C1).

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- A power switching unit (60 & 40), driven by the AC power and having a pulse width modulation integrated circuit (40) that is switched on or off to control provision of the DC power to the electronic machine (V1, V2, V3) when the host (ie. computer connected to 70) requests provision of DC power to the electronic machine (via 70) (See Column 10, Lines 18-46).
- An AC power connection unit (R6) receiving the AC power (via rectifier 80) and outputting the AC power to the power switching unit (See Figure 6).
- A power supply control unit (70) controlling the operation of the power switching unit, regardless of whether power is received by the power switching circuit (The Examiner notes that the computer will power the power supply control unit (70) regardless of whether the controlled device is powered (See figure 5).

In regard to Claim 4

- Wherein the power supply control unit (MICOM) is driven by power received from the host (100) (See Column 9, Lines 17-30).

In regard to Claims 7 & 15

- Wherein the power supply control unit (70) transmits a signal to stop operation of the PWM-IC when the power supply control unit (70) does not receive a request from the host to provide DC power to the electronic machine within a predetermined period of time (the predetermined amount of time being that of a request of power being made) (See Column 10, Lines 18-65).

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In regard to Claims 10 & 12

A circuit for controlling a power supply, having a power switching circuit, in an electronic machine using a host connected to the electronic machine, the circuit comprising:

- A power rectification circuit (80, Figure 6) transforming received alternating current (AC) power into direct current (DC) power and smoothing the DC power (via capacitor C1) a power switching circuit (60), driven by the AC power and having a pulse width modulation integrated circuit (PWM-IC, 40) that is switched on or off to control provision of the DC power to the electronic machine when the host (ie. computer) requests provision of DC power to the electronic machine (See Column 10, Lines 18-46).
- An AC power connection circuit (R6) receiving the AC power and outputting the AC power to the power switching circuit (60).
- A power supply control circuit (70) controlling the operation of the power switching circuit, regardless of whether power is received by the power switching circuit [The Examiner notes that the power supply control unit (70) is powered by the host, ie. computer 100 (See Column 10, Lines 18-46)].

In regard to Claim 11

- Wherein the power rectification circuit comprises an electrolytic capacitor (C1) that smoothes rectified power and has a discharge line that is grounded to prevent discharge of charges stored in the electrolytic capacitor (See Figure 6).

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In regard to Claim 13

- Wherein the AC power connection circuit comprises: a first node connected to an AC power supply source (read on by the connection between the source (Vin) and the rectifier (80), See fig 6); a second node connected to the power switching circuit (read on by the connection between resistors R6 & R8); and a resistor (R6) between the first node and the second node.
- Wherein the AC power connection circuit receives the AC power from the AC power supply source via the first node and transmits the AC power via the resistor to the second node.

In regard to Claim 18

A circuit for controlling a power supply, having a power switching circuit, in an electronic machine using a host connected to the electronic machine, the circuit comprising:

- A power rectification circuit (80) having an electrolytic capacitor (C1), the power rectification circuit transforming received alternating current (AC) power into direct current (DC) power and smoothing the DC power, and the electrolytic capacitor having a discharge line that is grounded to prevent discharge of charges stored in the electrolytic capacitor (See figure 6).
- A power switching circuit (60), driven by the AC power and having a pulse width modulation integrated circuit (PWM-IC, 40) that is switched on or off to control provision of the DC power to the electronic machine when the host (ie. computer) requests provision of DC power to the electronic machine.

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- An AC power connection circuit (R6) receiving the AC power and outputting the AC power to the power switching circuit.
- A power supply control circuit (70) controlling the operation of the power switching circuit, regardless of whether power is received by the power switching circuit.

Allowable Subject Matter

Claims 8, 14, & 16 & 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and correction of any 112 problems.

In regard to Claim 8, 16 & 17

Leonardi (US 4,937,728) teaches an apparatus for controlling a power supply comprising a switching unit that receives non-rectified (AC) power (i7, See Figure 1) however there is a lack of motivation to combine Leonardi with the apparatus of Kim et al. which has a DC operated switching unit as recited in claims 8 & 16.

In regard to Claim 14

Similarly to Claim 8, Claim 14 states output DC power from the rectifier which is not provided to the switching unit. Although Leonardi (US 4,937,728) teaches output

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AC power to a controller, there is a lack of motivation to combine Leonardi with the apparatus of Kim et al. which has a DC operated switching unit.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Choo et al. (US 6,674,271)
- Kim (US 6,909,616)
- Ryu et al. (US 7,040,727)
- Kim et al. (US 7,002,814)
- Kim (US 5,995,397)
- Cho (US 2004/0051386)
- Kim et al. (US 2004/0017112)
- Kim et al. (US 2003/0142515)
- Song (US 5,483,464)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Cavallari whose telephone number is (571)272-8541. The examiner can normally be reached on Monday-Friday 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on (571)272-2800 x36. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Daniel Cavallari

August 6, 2007

A handwritten signature in black ink, appearing to read 'MS 8/11/07', is written over the printed name and title of Michael Sherry.

MICHAEL SHERRY
SUPERVISORY PATENT EXAMINER